

Partial Review of British Columbia Shoreline Policies and Opportunities for Green Shores®

A review of shoreline management policies across 21 regional districts in British Columbia to evaluate application of Green Shores and potential for program expansion.



#### **Acknowledgements**

This report was prepared for the Stewardship Centre for BC (SCBC) by Carrie Koch with financial support from the Government of Canada (Canada Summer Jobs program) and the Real Estate Foundation British Columbia. Assistance and technical review are gratefully acknowledged from DG Blair (Stewardship Centre for BC); Deborah Carlson (West Coast Environmental Law); Jimena Eyzaguirre (ESSA Technologies Ltd.); SCBC Board members Christine Callihoo and Joan Chess; Harriet Rueggeberg (Green Shores Technical Advisory Committee) and members of the Green Shores Local Government Group. Thanks are also extended to the Comox Valley Regional District, the Regional District of Nanaimo, Town of Qualicum Beach and the Capital Regional District for sharing their experience and examples in the case studies included in this report.

#### The Stewardship Centre for BC

This report has been prepared to provide background information for the Green Shores® program of the Stewardship Centre for BC. SCBC was created to help governments, businesses, conservation and environmental organizations, and citizens carry out stewardship activities in the most efficient, effective, and rewarding ways. A leader in promoting stewardship values as the foundation for sustainability, the SCBC wants to help make "shared stewardship" — the voluntary adoption of environmentally sustainable practices by all sectors of society — a reality in British Columbia.

For more information about the Stewardship Centre, visit https://stewardshipcentrebc.ca/

Cover Photo: Green Shores for Homes certificate recipients, 2018 (Photo credit: H. Rueggeberg)

#### For more information regarding Green Shores, contact:

<u>info@stewardshipcentrebc.ca</u>
Tel 866.456.7222
<a href="https://stewardshipcentrebc.ca/green-shores-home/">https://stewardshipcentrebc.ca/green-shores-home/</a>

©2020



This project was undertaken with the financial support of the Government of Canada. Ce projet a été réalisé avec l'appui financier du gouvernement du Canada.



**Disclaimer** The Stewardship Centre for BC provides the information in this report for educational purposes only. Material contained within it carries no guarantee of any kind, expressed or implied. The Stewardship Centre for BC accepts no liability for damages to any person or business entity because of using this report, its information or any website linked to it. This report is meant to complement but not replace other existing resources. This report is based on research and interpretation by the SCBC. It does not represent a legal opinion.



# **Table of Contents**

1.	Introduction		4
	1.1. 1.1.1 1.1.2 1.1.3 1.1.4	Resources and Technical Information Local Government Working Group Credits and Ratings Systems	4 5 5 5
	1.2.	Report Overview	5
2.	Met	hodology	5
	2.1.	Geographic Extent	5
	2.2.	Review Process	6
	2.3.1 2.3.2 2.3.3	. Climate Change	8 8
3.	3. Results and Analysis		9
	3.1.	Policy Alignment with Green Shores	9
	3.2.	Climate Change	12
	3.3.	Use of Qualified Environmental Professionals	13
	3.4.	Shoreline Development	14
4.	Case	e Examples	
5.		clusions & Recommendations	
A i		x A	
_	-	l Districts, Municipalities, and Electoral Areas that include	
		es integrated into their Policy Documentstime	
	_	ces	
	-,		

# **Appendices**

Appendix A – Regional Districts, Municipalities, and Electoral Areas that include Green Shores principles

#### **Additional Documents**

**Green Shores Policy Research Spreadsheet** 



#### 1. Introduction

Green Shores®, a program of the Stewardship Centre for British Columbia (SCBC), promotes sustainable use of shorelines to minimize impacts of development and restore previously impacted shoreline ecosystems. Green Shores provides science-based tools and best practices guidelines for industry professionals in the planning, engineering, landscape architecture, ecological restoration and construction fields; for conservation organizations and local governments; and shoreline property owners interested in minimizing the environmental impacts of their projects in a cost-effective manner.

The purpose of this policy review is to determine the extent to which shoreline policies that are consistent with Green Shores principles have been adopted by local governments in BC and to identify opportunities to expand the program.

Green Shores is based on four guiding principles:

- Preserve the integrity or connectivity of shoreline processes
- Maintain or enhance habitat diversity and function
- Minimize or reduce pollutants to the environment
- Reduce cumulative impacts to the shoreline environment.

#### 1.1. Components of Green Shores

#### 1.1.1. Education and Training

The SCBC uses workshops, webinars, and other outreach platforms to address shoreline concerns such as erosion and flood protection (including Sea Level Rise). Two levels of Green Shores training workshops, <u>Green Shores Level 1 and Level 2</u>, are designed to inform participants about shoreline ecosystem protection options and provide detailed information about the Green Shores credit and rating systems for those seeking to implement shoreline improvements. The workshops are designed for elected officials, landowners, municipal staff, conservation organizations, real estate agents, contractors, and other interested professionals, including biologists, engineers, planners, and landscape architects. A further course (Green Shores Level 3) is currently under development for professionals seeking a Green Shores "Approved Professional" rating.

# Benefits of the Green Shores approach:

- Enhanced shorelines with native vegetation, wildlife habitat, and improved access to waterfront activities
- Increased resilience of shorelines against erosion and flooding using alternatives to costly sea and lakeshore retaining walls while addressing owner concerns
- Wide range of benefits compatible with LEED for Homes, BuiltGreen, and Sustainable Sites programs

#### 1.1.2. Resources and Technical Information

Through the Green Shores program, SCBC provides <u>Green Shores resources</u> and access to technical information, including the most recent best practices and research.

#### 1.1.3. Local Government Working Group

Green Shores provides local governments with information about shoreline policies and bylaws and support through the <u>Green Shores Local Government Working Group</u>.

#### 1.1.4. Credits and Ratings Systems

Green Shores has two credit and ratings systems with guidelines to help with project design and performance. <u>Green Shores for Shoreline Development</u> is a guide for commercial, multi-family residential, subdivision, park, and institutional waterfront development. <u>Green Shores for Homes</u> is a guide for residential property owners. Both guides apply to both marine and lake shorelines.

#### 1.2. Report Overview

This report provides a policy review of 290 regional governments, municipalities, and electoral areas across British Columbia to evaluate the level of adoption of policy and regulatory tools consistent with Green Shores principles. This information will help identify areas with strong shoreline protection policies in place and areas where efforts to increase uptake of Green Shores principles in policy and regulation could be directed. Areas with Green Shores included in their policies are listed in Appendix A.

# 2. Methodology

#### 2.1. Geographic Extent

This report includes a policy review of municipalities and electoral areas within the following 21 regional districts as well as the Islands Trust:

- Alberni-Clayoquot
- Capital
- Central Coast
- Central Kootenay
- Central Okanagan
- Columbia Shuswap
- Comox Valley
- Cowichan Valley
- East Kootenay
- Kitimat-Stikine
- Kootenay Boundary
- Metro Vancouver

- Mount Waddington
- Nanaimo
- North Coast
- North Okanagan
- Okanagan-Similkameen
- gathet (formerly Powell River)
- Squamish-Lillooet
- Strathcona
- Sunshine Coast



In total, 21 regional districts were included, which in turn include 121 municipalities, 126 electoral areas, and 22 Islands Trust communities. The following regional governments were <u>not</u> included in this review due to time and resource constraints:

- Bulkley-Nechako
- Cariboo
- Fraser Valley
- Fraser-Fort George
- Northern Rockies
- Peace River
- Thompson-Nicola

It is hoped that future reviews will include full representation from across the province.

#### 2.2. Review Process

For each regional district, municipality, or electoral area, the following pertinent documents were reviewed:

- Regional Growth Strategy (where required by provincial legislation)
- Official Community Plan
- Development Permit Areas Regulations
- Zoning Bylaw or other relevant bylaws

Additional documents were reviewed when available online, including (but not limited to) shoreline management plans, sustainability strategies, and ecosystem restoration plans.

Each document was individually reviewed for references to the term 'Green Shores' or to Green Shores' principles<sup>1</sup>. The table of contents and headings were often helpful in locating sections of the documents most likely to contain relevant information.

For readable documents, the search tool was also used to ensure that no relevant information was missed. Each document was searched for 'Green Shores' and 'GreenShores' as well as the list of root words in Table 1. Root words were used to target variations of keywords for both inland and coastal areas.

<sup>&</sup>lt;sup>1</sup> 1. Preserve the integrity and connectivity of shoreline processes; 2. Maintain and enhance shoreline habitat diversity and function; 3. Minimize and reduce pollutants to the shoreline environment; 4. Reduce and reverse cumulative impacts to shoreline systems.

**Table 1.** Search terms for inland and coastal area documents.

Root	Key Word(s)	Inland	Coastal
Shore	Shores Shoreline Foreshore Lakeshore	<b>√</b>	<b>√</b>
Coast	Coastal Coastline		<b>√</b>
Lake	Lakefront Lakeshore	<b>√</b>	
Water	Waterfront Stormwater Waterbasin Freshwater	<b>√</b>	<b>√</b>
Tidal	Intertidal		<b>√</b>
Estuar-	Estuary Estuarine		<b>√</b>
Marine			<b>✓</b>
Sediment		<b>√</b>	<b>√</b>
Habitat		<b>✓</b>	<b>✓</b>
Aquatic		<b>✓</b>	<b>✓</b>
Riparian		<b>✓</b>	<b>✓</b>
Discharge		<b>✓</b>	<b>✓</b>
Runoff		<b>✓</b>	<b>✓</b>
Bulkhead		<b>√</b>	<b>√</b>
Erosion		<b>√</b>	<b>√</b>
Armour (or armor)		<b>√</b>	<b>√</b>
Floodplain		<b>√</b>	<b>√</b>

#### 2.3. Information Gathering & Evaluation Criteria

During the review of the OCP, DPAs, and Zoning Bylaws, some of the information related to shoreline ecosystem protection or restoration was copied directly into columns of a Research Spreadsheet. This text is provided for information only and is not exhaustive of all the shoreline related policies in the reviewed documents. This information helps to provide examples of language used by regional districts, municipalities, and electoral areas across the province.

Alignment with Green Shores' principles, discussion of climate change impacts on shorelines, and verification by a Qualified Environmental Professional were the three main evaluation criteria used for data analysis.

#### 2.3.1. Alignment with Green Shores

Following a review of the relevant documents, each regional government, municipality, or electoral area was evaluated for its alignment with Green Shores' principles. Each area was assigned a 1 thru 5 ranking based on the alignment of their policies with Green Shores' principles. Policies that directly reference the Green Shores program were indicated in the Research Spreadsheet. Note that general environmental policies were not considered to align with Green Shores' principles without explicit reference to Green Shores AND shoreline, waterfront, or riparian environments.

In assigning the ranking, the following rules were applied:

- 5: Policies align with and enforce all four Green Shores' principles. Directly references Green Shores.
- 4: Policies align with, encourage, or enforce all four Green Shores' principles. May or may not directly reference Green Shores.
- 3: Policies align with, encourage, or enforce most (at least three) of the Green Shores' principles.
- 2: Policies align with, encourage, or enforce some (one to two) of the Green Shores' principles.
- 1: Policies do not address shoreline protection and restoration or do not align with any of the four Green Shores' principles.

#### 2.3.2. Climate Change

The bylaws of each regional government, municipality, or electoral area were evaluated on whether the documents contained discussion of potential climate change impacts to shorelines. In coastal areas, this may include discussion of sea level rise, saltwater intrusion, or coastal storm surge. For inland areas, discussion may include impacts to habitat and riparian species or flooding.



#### 2.3.3. Qualified Environmental Professional

Each regional government, municipality, or electoral area was evaluated on whether policies required approval or verification from a Qualified Environmental Professional (QEP). A QEP is considered to be a scientist or technologist who is registered and in good standing with an appropriate BC professional organization and acting within his/her professional abilities. Approval or verification by a QEP is a key aspect of Green Shores to ensure that guidelines are followed and on-the-ground work is completed properly.

# 3. Results and Analysis

A total of 290 regional governments, municipalities, and electoral areas in BC were included in this review. Of those, 252 were given a ranking for their alignment with Green Shores principles and are included in the following data analysis. The remaining 38 areas were lacking essential documents for this review and included:

- 7 municipalities and 5 electoral areas with OCPs under review
- 6 electoral areas with no OCPs
- 17 regional districts with no regional growth strategy or other similar policy documents (only certain RD's are required by legislation to have an RGS)
- 3 communities within the Islands Trust

Available documents were reviewed for these 38 local governments, and any pertinent information was entered into the spreadsheet, but no ranking is provided for their alignment with Green Shores principles.

#### 3.1. Policy Alignment with Green Shores

Overall, coastal regional governments, municipalities, and electoral areas were more likely to have policies that aligned with Green Shores' principles. A total of twenty-nine regional districts, municipalities, and electoral areas include Green Shores Principles integrated into their policy documents (see Appendix A). The majority are coastal, with one (District of Invermere, Regional District of East Kootenay) inland.

Over 72% of coastal areas and 54% of inland areas have some shoreline protection, or at least one Green Shores principle incorporated in their policies and were given rankings of 2 or higher. Respectively, 28% and 46% of coastal areas and inland areas have no shoreline protection policies or alignment with any of the four Green Shores principles (Figure 1).

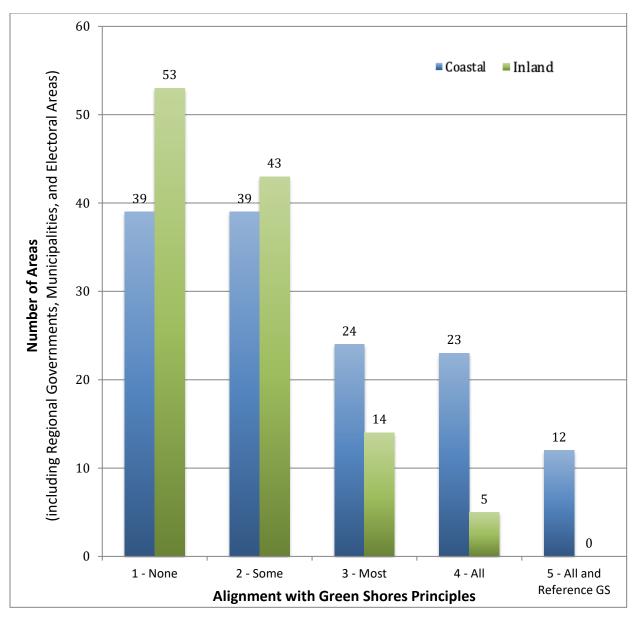
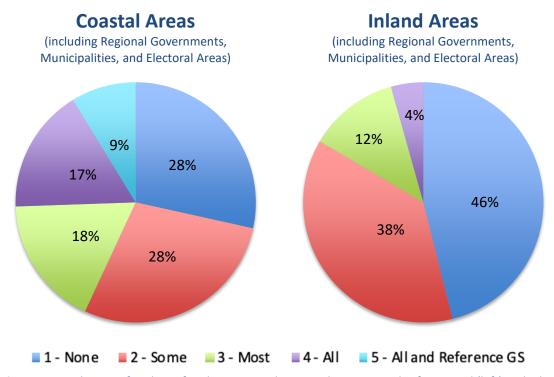


Figure 1. Alignment with Green Shores principles for policies of coastal and inland areas.

Twenty-six percent of coastal regional districts, municipalities, and electoral areas were considered to have rankings of 4 or 5 - demonstrating strong alignment with Green Shores' principles, 18% aligned with most principles (ranked 3), and 28% aligned with some of the Green Shores principles (ranked 2). A further 28% had no alignment with Green Shores (Figure 2).



**Figure 2.** Distribution of rankings for alignment with Green Shores principles for coastal (left) and inland (right) areas. Refer to Section 2.3.1 for details of the ranking system.

No inland areas directly mention Green Shores, and only 4% of inland areas aligned with all four Green Shores principles, earning a 4-rating. Twelve percent (12%) aligned with most Green Shores principles while 38% aligned with some of the Green Shores principles. Almost half (46%) of the inland areas have no shoreline protection policies or do not align with any of the Green Shores principles. A large majority of the policies reviewed for inland areas currently rely on provincial and federal regulations for Environmentally Sensitive Areas and Riparian Areas but do not address impacts such as flooding and erosion control for lake shores that are included in Green Shores guidance.

More coastal areas achieved a rating of 5 than inland areas (9% vs 0%). A rank of 5 required direct mention AND adoption of Green Shores principles through policies or bylaws.

Across all BC local municipalities, electoral areas, and Island Trust communities reviewed, approximately 70% received level 1 or 2 ratings (Table 2 and Figure 3).

Table 2. Distribution of ratings (number and percentage of areas for each ranking).

Rating	Municipalities	Electoral Areas	Islands Trust
1	52   46%	33   29%	7   33%
2	26   23%	47   42%	8   38%
3	16   14%	20   18%	2   10%
4	15   13%	8   7%	4   19%
5	5   4%	5   4%	0   0%

# Municipalities Electoral Areas Islands Trust O O O 13% 14% 14% 14% 15 - All and Reference GS

Figure 3. Distribution of rankings for policy alignment across different types of communities.

#### 3.2. Climate Change

Coastal regional governments, municipalities, and electoral areas were much more likely to refer to climate change impacts to shorelines, with 53% referring to the topic (including sea level rise and coastal storm surge) compared to only 13% of inland areas (Figure 4). Many of the documents for inland areas referred to climate change, particularly greenhouse gas emissions, but failed to address specific impacts to shoreline environments and ecosystems.

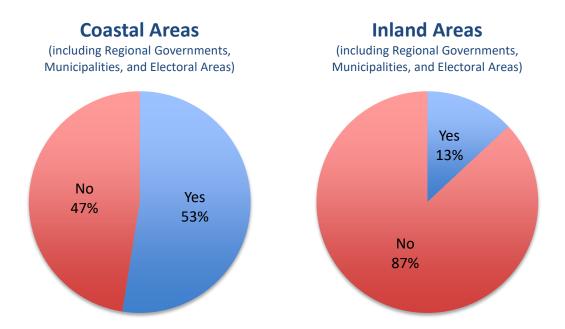
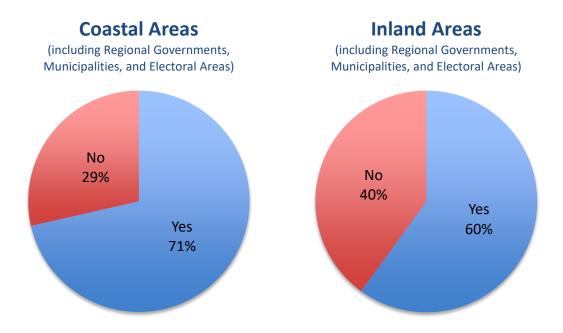


Figure 4. Discussion of climate change impacts to shoreline ecosystems in coastal and inland areas.

#### 3.3. Use of Qualified Environmental Professionals

Coastal regional governments, municipalities, and electoral areas were slightly more likely than inland ones to require approval or verification from a qualified environmental professional for work on or near shorelines, with 71% and 60%, respectively (Figure 5).



**Figure 5.** Requirement for approval or verification of a Qualified Environmental Professional to work in shoreline areas.



#### 3.4. Shoreline Development

A review of total shoreline, developed shoreline length, and percentage of developed shoreline (lake or coastal) for BC local government jurisdictions was compared to the assigned rating for alignment with Green Shores' principles with no apparent correlation found. For example, the Corporation of the City of Courtenay only has four kilometres of shoreline (50% developed) and achieved a level 5 rating for alignment with Green Shores' principles, while The Corporation of the District of Saanich has over 200 kilometres of shoreline (41% developed) and achieved a level 1 rating.

Nineteen of the municipalities or electoral areas reviewed do not contain water bodies such as marine or lake shorelines appropriate for Green Shores. Most of these are geographically small or are located along rivers (Green Shores does not yet apply to rivers or streams).

# 4. Case Examples

#### Comox Valley Regional District (CVRD)

The Rural CVRD's Official Community Plan generally does not support new shoreline hardening through the use of rip rap, concrete embankments and revetment walls, and other similar structural interventions that alter the ecological function and service of the coastal shoreline, disturb natural vegetation, disrupt natural coastal processes, redirect wave energy to adjacent properties, and/or destroy coastal shore habitat, including forage and spawning areas. Suppose a qualified professional concludes that shoreline hardening is required to protect life or a principal building on the property and that the impacts of the proposed hardening can be mitigated. In that case, the property owner can apply for a shoreline protection devices development permit. There are two review processes for this development permit based on the design approach and related impact on the shoreline (i.e. "hard" versus "soft"). If a "soft" (e.g. Green Shores) approach is proposed, staff can approve the development permit through delegated authority, which reduces processing time. If hard elements are proposed, approval by the Regional Board is required. The shorter processing time for a soft shores approach acts as an incentive for property owners who want to complete the work in a timely matter.

Excerpt: Rural Comox Valley Official Community Plan, Bylaw No. 337, 2014 (2017)

https://www.comoxvalleyrd.ca/sites/default/files/uploads/bylaws/337 rural cv ocp c onsolidated.pdf

"Where an applicant proposes the installation, replacement or repair of a shoreline protection device under these guidelines, the design of the device shall contribute to shoreline resiliency by following soft shore (e.g. "Greenshore") principles:



- Conserve or restore natural coastal or riparian processes (e.g. sediment transfer);
- Maintain habitat function and diversity;
- Prevent pollutants from entering the aquatic or riparian environment;
- Avoid or reduce cumulative impacts on the shoreline environment, including coastal or riparian processes.

All proposals shall incorporate design elements that contribute to coastal resiliency by protecting or restoring natural coastal processes and habitat. Except when a hardened shoreline is proposed (i.e. based on the findings of a qualified professional that shoreline hardening is required to protect life and/or a principal building), shoreline protection device development permits can be approved under delegated authority. Proposals to harden a shoreline, including replacement and/or maintenance of an existing hard shoreline with similar hard design elements shall require board approval of the development permit."

#### Regional District of Nanaimo (RDN)

The RDN framework for guiding development in the coastal zone includes a number of policies, procedures and educational initiatives. Goals 1 and 2 of the Regional Growth Strategy provides foundation policies for preparing for climate change and protecting the environment that seeks to minimize the impacts of development in coastal zones by ensuring the use of low impact development. These values are integrated into community-specific policies established in the Official Community Plans adopted by each electoral area and municipality in the region.

In 2018, the RDN reviewed the Development Permit Area (DPA) Guidelines for the seven electoral areas with the intent of updating and harmonizing the approach to land management in the rural areas. This initiative provided an opportunity to work towards the environment goal of the Regional Growth Strategy by designating a new Marine Coast Development Permit Area for the protection of the coastal areas and for the protection of development from natural hazards, such as erosion, storm surge and changing sea levels.

The Marine Coast Development Permit Area provides specific policy and procedures for any proposed land alternations within the DPA, and when a Professional Engineer has determined shoreline protection measures are needed to protect property from erosion, the design of these works are to be made in accordance with Green Shore principles. Entirely 'hard' structural shore protection may only be considered as a last resort, where a professional analysis has been shown to meet the criteria established in the DPA Guidelines.



To ensure more tools are available for enforcement of the Guidelines, the Marine Coast DPA was adopted into the Land Use and Subdivision Bylaw (Bylaw No. 500), which is available on the RDN's webpage: <a href="https://www.rdn.bc.ca/bylaws-policies-forms-maps">www.rdn.bc.ca/bylaws-policies-forms-maps</a>. (2018)

In addition to policies and bylaws, the RDN is currently developing a "Sustainable Site Planning Guide" to support property owners and builders in a planning process to lower the impact of development on the natural environment. This RDN publication is the third in the Green Building Guidebook Series. It aims to encourage the use of sustainable practices in residential construction, landscaping and major renovation projects. The Guide includes a section on developing in marine coastal areas and encourages property owners to learn about the Green Shores for Homes (GSH) program and follows the GSH checklist as a companion to the Sustainable Site Planning Guide. Once completed, the Guide will be made publicly available on the RDN webpage.

#### Capital Regional District (CRD)

A number of municipalities within the Capital Regional District, including the City of Colwood, the City of Victoria and Oak Bay, incorporate shoreline policies consistent with Green Shores principles within their Official Community Plans (OCPs), and some refer specifically to the Green Shores program. The Green Shores principles within the City of Colwood OCP is used in this example below.

An objective of the City of Colwood's OCP (2018) is to 'Maintain and regenerate the ecological function of Colwood's diverse shorelines". Under the Shoreline Protection policy, the City of Colwood commits to "Protect natural shorelines including those of marine, estuarine, wetland, lake and freshwater streams so that they can continue performing multiple ecological functions". The policy includes preventing hard shoreline development and maintaining natural shoreline processes, requiring shoreline protection measures that mimic functional ecosystems, including soft shore restoration treatments as part of the Master Parks Plan and following Green Shores for Coastal Development criteria for works undertaken by the City of Colwood.

Development Permit Area Guidelines are in place to help to achieve the visions, goals and policy objectives of the OCP. The Environmental Protection Development Permit Areas (DPA) include a Marine Shoreline DPA. Design guidelines for the Marine Shoreline DPA do not support hardening of shorelines. The guidelines are in support of soft shore approaches to protect shorelines from erosion and the conservation of coastal sediment processes. If shore protection is required, a design must be provided that emulates natural foreshore sediment supply over a 75-year cycle of natural erosion or the life of the project. The design must be signed and sealed by a Qualified Professional (i.e. coastal geomorphologist or coastal process engineer). Additional design guidelines for the Marine Shoreline DPA include but are not limited to: maintaining a shoreline buffer of 30 m from the natural boundary in a natural or ecologically enhanced state, placing structures at least 2 m from the highest elevation of the natural boundary, avoiding



placing structures over marine vegetation unless light penetrating grating can be used, protecting marine vegetation and minimizing disturbance from nearshore construction activities. Further details can be found in the City of Colwood OCP (<a href="https://www.colwood.ca/city-hall/bylaws/1700/official-community-plan-bylaw">https://www.colwood.ca/city-hall/bylaws/1700/official-community-plan-bylaw</a>) (2018)

An application for a development permit must include a report from a Qualified Professional describing the current and proposed site conditions. The report must describe how the proposed development will avoid negatively affecting marine shorelines.

#### Town of Qualicum Beach

Since 2011, the Town of Qualicum Beach Official Community Plan has strongly discouraged hard foreshore armouring favoring natural "Green Shores" style protection. In 2016, the Town of Qualicum Beach advanced this commitment with its "Waterfront Master Plan", a comprehensive coastal adaptation strategy that considered comprehensive planning for sea-level rise along with community planning to create a vibrant waterfront. The cross-disciplinary approach drew upon diverse expertise in the fields of geomorphology, urban design, and coastal biology to develop a comprehensive plan for community sustainability.

The Waterfront Master Plan provides an overall policy framework to guide long-term decision-making and introduced two specific evaluative frameworks to support decision-makers in the future:

- Engineering and Environmental Evaluation Framework; and
- Waterfront Community Values Evaluation Framework.

The frameworks highlight strengths and weaknesses and guide challenging decisions with regard to waterfront projects. The Engineering Framework determines whether ideas are technically feasible and effective from the perspective of ecology and coastal engineering. The Community Values Evaluation Framework highlights the strengths and weaknesses when compared to community values.

The engineering and environmental evaluation framework was developed using the following general principles:

- Compatibility with the expected coastal/marine conditions,
- Maintain or enhance foreshore ecological services, and
- Optimize community investment in waterfront areas.

For the purpose of defining the evaluation framework, 11 criteria were selected to evaluate and compare proposed coastal development options and linked to the three general principles.

The Community Values Framework to Evaluate Waterfront Concepts: Framework



Guidance was developed as part of the Waterfront Master Plan Phase 2. The criteria are based on feedback collected through various public engagement initiatives. Since 2016, the Town has successfully reviewed a number of waterfront initiatives with the two evaluative frameworks, ranging from foreshore protection projects to new food truck locations.

#### 5. Conclusions & Recommendations

Overall, across BC, coastal regional districts, municipalities, and electoral areas have more (and stronger) shoreline protection policies in place than those that are inland. Inland areas were also significantly less likely to discuss climate change impacts on shorelines and shoreline ecosystems.

Since the original publication in 2010, Green Shores has already had a significant impact in changing shoreline management practices along the coast, with 9% of the local governments surveyed directly referencing the program in policies. Expansion of Green Shores with *Green Shores for Shoreline Development* in inland areas will help promote the protection of inland shoreline processes and habitats, minimize pollutants, reduce cumulative impacts to the shoreline environment, and address climate change impacts.

While this research did not reveal a correlation between shoreline length or development and alignment with Green Shores principles, this data can be used to help identify areas for Green Shores to target, for example, areas with large shorelines and a level 1 rating. Areas that have a low percentage of developed shoreline will need to implement strong protection and conservation policies, while communities with a high percentage of developed shoreline will also have to address shoreline restoration.

In addition, an essential component to expanding Green Shores will be identifying the right method of engagement, including determining whether to approach regional districts, municipalities, or electoral areas. Shorelines and ecosystems are also not constrained by policy boundaries, and inter-boundary coordination will be necessary to protect connectivity and reduce cumulative impacts.

While policies and bylaws are an essential component to land use management and protection of ecosystems, additional research would be required to evaluate their effectiveness. In some jurisdictions, bylaws may be extremely effective, while in other jurisdictions, incentives and creative solutions (such as the credits and rating systems) are necessary to encourage protection of ecosystems. Each local community faces different climate change and developmental challenges, which will require a variety of creative solutions. As the Green Shores program evolves, it is important to consider the benefits of a regulatory and/or incentive-based approach in each unique context.

# **Appendix A**

### Regional Districts, Municipalities, and Electoral Areas that include Green Shores Principles integrated into their Policy Documents

- 1. Electoral Area A Bamfield, Regional District of Alberni-Clayoquot
- 2. City of Colwood, Capital Regional District
- 3. Corporation of the Township of Esquimalt, Capital Regional District
- 4. The Corporation of the District of Oak Bay, Capital Regional District
- 5. Juan de Fuca Rural Resource Lands, Capital Regional District
- 6. Comox Valley Regional District
- 7. The Corporation of the City of Courtenay, Comox Valley Regional District
- 8. Town of Ladysmith, Cowichan Valley Regional District
- 9. Electoral Area D, Cowichan Valley Regional District
- 10. District of Invermere, Regional District of East Kootenay
- 11. Mayne Island, Islands Trust
- 12. Salt Spring Island, Islands Trust
- 13. District of Port Hardy, Regional District of Mount Waddington
- 14. Regional District of Nanaimo
- 15. City of Parksville, Regional District of Nanaimo
- 16. District of Lantzville, Regional District of Nanaimo
- 17. Town of Qualicum Beach, Regional District of Nanaimo
- 18. Electoral Area A, Regional District of Nanaimo
- 19. Electoral Area G, Regional District of Nanaimo
- 20. Electoral Area H, Regional District of Nanaimo
- 21. Village of Masset, North Coast Regional District
- 22. qathet Regional District (formerly Powell River)
- 23. Electoral Area A, gathet Regional District (formerly Powell River)
- 24. District of Squamish, Squamish-Lillooet Regional District
- 25. Electoral Area B Cortes Island, Strathcona Regional District
- 26. District of Sechelt, Sunshine Coast Regional District
- 27. Town of Gibsons, Sunshine Coast Regional District
- 28. Electoral Area D Roberts Creek, Sunshine Coast Regional District
- 29. Electoral Area E Elphinstone, Sunshine Coast Regional District



# References

Over 400 policy documents were reviewed by the researcher for this paper. All policy documents reviewed are referenced in the Research Spreadsheet associated with this report.